during application of the fastener and thereby facilitates passage of the shank portion through the work structure. When the fastener is fully applied to the work structure as shown in Fig. 4, the resilient shank elements **28** and **30** spring radially outwardly toward their normal positions to locate a pair of the prongs **36** and **38** for engagement with the inner surface of the work structure. It will be appreciated that the transverse ribs or struts **44** greatly aid in retaining the shank elements **28** and **30** against radial collapsing after the fastener has been fully applied so as to prevent the prongs or shoulder means from becoming disengaged from the work structure. Furthermore, it should be noted that the above mentioned reverse inclination of the shoulder surfaces **42** aids in transmitting any tension forces tending to pull the fastener out of the work structure to the shank elements **28** and **30** and to opposite ends of an adjacent transverse strut or rib **44** in a manner which tends to straighten the curved or bowed rib. As a result of the tendency of the rib to straighten rather than to collapse when tension is applied to the fastener, the rib will tend to radially expand the shank elements **28** and **30** so as to urge the shoulder means or prongs more aggressively into engagement with the work structure.

The fastener **20** may be molded, if desired, from any suitable material, but in view of its symmetrical configuration it is especially adapted to be formed from a strip of extruded stock material. Fig. 8 shows a strip **54** of extruded stock material from which fastener devices **20** may be formed merely by severing the strip along successive lines **56**. It is understood, of course, that the strip **54** may be extruded by suitable means so as to have a cross sectional configuration identical to the configuration of the fastener device **20** as shown in Fig. 2.

Fig. 5 shows an embodiment of the present invention which is similar to the above described structure as indicated by the application of identical reference numerals with the suffix "*a*" added to corresponding elements. In this embodiment scissors-like transverse strut or rib means **58** are provided. As a result of the scissors-type strut means, the entire shank portion is axially extended and radially collapsed when the first set of prongs or shoulder elements adjacent the entering end of the fastener are collapsed upon engagement with the workpiece so as to facilitate passage of the remaining prongs through the workpiece apertures.

Fig. 6 shows a fastener **20*b*** embodying the modification of the device shown in Fig. 5. In this embodiment the scissors-like rib means **58*b*** are respectively provided by separate V-shaped sections **60** and **62** having abutting inner ends and outer ends integrally connected to the axially extending shank elements axially of opposite ends of adjacent prongs or shoulder means. In this embodiment axial extension and radial collapsing of the shank portion is also accomplished when a pair of the shoulder or prong means is collapsed during application of the fastener to the work structure.

Fig. 7 shows a fastener device **20*c*** embodying another modified form of the present invention. In this embodiment the head portion **22** is rounded and is made axially collapsible by the provision of annular recesses **64** and **66**. In addition, an axially extending pin **68** is provided which has its opposite ends respectively integrally connected with the head portion and with the entering end portions of the shank elements **28*c*** and **30*c***. With this embodiment, the head portion is axially collapsed when pressure is applied thereto during application of the fastener to a work structure so that the pin element **68** applies tension to the shank elements **28*c*** and **30*c***. This tends to elongate and radially collapse the shank elements so as to facilitate application of the fastener. In addition, the ribs or struts **44*c*** extend between the pin element **68** and portions of the shank elements **28*c*** and **30*c*** which are formed to provide the shoulder or protuberance means **36*c*** and **38*c*** so that when the pin element is axially shifted upon collapsing of the head portion, the locking prongs are pulled inwardly further to promote easy application of the fastener to the work structure. Then when the fastener is fully applied and the pressure is relieved from the head portion **22** so that it and the pin element **68** return toward their normal positions, the strut elements urge and retain the shoulder or prong means radially outwardly for engagement with the work structure.

Fig. 9 shows a fastener device **20*d*** wherein the generally axially extending shank elements **28*d*** and **30*d*** have portions diverging with respect to each other from the head portion so as to provide shoulder means **36*d*** and **38*d*** engageable with an inner or back surface of a work structure.

Fig. 10 shows a fastener **20*e*** which is similar to the device shown in Fig. 9 except that the shank elements **28*e*** and **30*e*** are provided with two pairs of diverging portions for providing two pairs of work engaging shoulder means. As shown in the drawings, these pairs of diverging portions may extend laterally or radially different amounts so that the fastener is adapted to be applied to workpieces having apertures of different sizes.

Figs. 11, 12 and 18 show a fastener device **20*f*** which is similar to the structure shown in Fig. 9 except that opposite generally axially extending side ribs **70** and **72** are provided which have their opposite ends respectively integral with the head portion and with the transverse rib **44*f***. During application of this fastener device to an apertured work structure, outwardly bowed portions **74** and **76** of the side ribs are collapsed inwardly by margins of the work structure. When this occurs, the transverse rib portion **44** is axially deflected and collapsed so as to faciliate collapsing of the shoulder means **36*f*** and **38*f***. When the fastener has been fully applied to the work structure, the bowed portions **74** and **76** of the side ribs return toward their normal positions and thereby apply forces aiding the inherent resiliency of the transverse rib **44*f*** and the shank elements in biasing the shoulder portions into engagement with the work structure.

Fig. 13 shows a fastener device **20*g*** which is similar to the embodiment shown in Fig. 9 except that the entering ends of the shank elements **28*g*** and **30*g*** are separated. This structure promotes easier collapsing of the shank elements during application of the fastener to an apertured work structure.

Figs. 14 and 15 show a fastener **20*h*** which is similar to embodiments described above as indicated by the application of identical reference numerals with the suffix "*h*" added to corresponding elements. This embodiment illustrates how fasteners which are satisfactory for many purposes may be provided with a transverse rib element **44*g*** which is initially bowed axially toward the head portion rather than toward the entering end of the fastener.

Figs. 16 and 17 show a fastener device **20*i*** which is similar to the embodiment shown in Fig. 9 as indicated by the application of identical reference numerals with the suffix "*i*" added to corresponding elements. In this embodiment an integral axially extending circular abutment or collar **78** is provided between the head portion **22*i*** and the shank elements. This solid abutment is adapted to extend into a workpiece aperture for locating the fastener centrally within the aperture and for absorbing any shear stresses which may be applied to the fastener when it is assembled with a workpiece.

While the preferred embodiments of the present invention have been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

The invention is claimed as follows:

1. A one-piece resilient fastener made of synthetic resin plastic material and comprising a substantially